

**OPTICAL PULSE SOURCE FOR LONG HAUL**  
**OPTICAL COMMUNICATIONS SYSTEMS**

**ABSTRACT**

5           In accordance with the invention, a modulated RZ pulse source comprises a  
modulated light source optically coupled to a stabilized Bragg grating filter and one or  
more optical taps. The light source is preferably modulated in power and frequency  
and has an adjustable channel wavelength  $\lambda$ . The Bragg grating filter has a reflectivity  
bandwidth having a high slope reflectivity cutoff and is preferably tunable. A feedback  
10 arrangement responsive to the taps keeps the source channel wavelength  $\lambda$  on the edge  
of the reflectivity bandwidth for shaping RZ pulses. When the Bragg grating is  
stabilized, the feedback system maintains  $\lambda$  at a value linked to the grating reflectivity  
edge and, by overlapping at least part of the optical spectrum of the source, converts the  
modulated source light into RZ pulses with high extinction ratio ( $\geq 12$  dB). The result  
15 is a high power, jitter-free RZ pulse source that is compact, inexpensive and power  
efficient.